

## Chapter 8. State Indicators

### 8-47 Academic Science and Engineering Article Output per \$1 Million of Academic S&E R&D

#### Description

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This indicator represents the relationship between the number of academic S&E publications and the amount of money expended for academic R&D. Academic institutions include 2-year colleges, 4-year colleges or universities, medical schools, and university-affiliated research centers. This indicator is not an efficiency measure; it is affected by the highly variable costs of R&D and by publishing conventions in different fields and institutions. It may also reflect variations in field emphasis among states and institutions.

Publication counts are based on the number of articles that appear in a set of journals tracked by Elsevier's Scopus database as of May 2015. The journal set consists of science and engineering publications (including publications on the natural sciences, the applied sciences, the medical sciences, and the social sciences but excluding the arts and humanities). Only documents published in refereed scientific journals were counted (mostly articles, reviews, and conference proceedings), as these documents were reviewed by peers prior to being accepted for publication. The peer-review process ensures that the research is of good quality and constitutes an original contribution to scientific knowledge. Fractional counting at the level of researchers is used to ensure that a single paper is not counted several times. For example, if two of three authors are in state A and the third author is in state B, then two-thirds of the publication are attributed to state A, and one-third is attributed to state B.

Data on academic R&D are provided by the National Center for Science and Engineering Statistics and represent S&E R&D at U.S. colleges and universities with over \$150,000 in R&D expenditures.

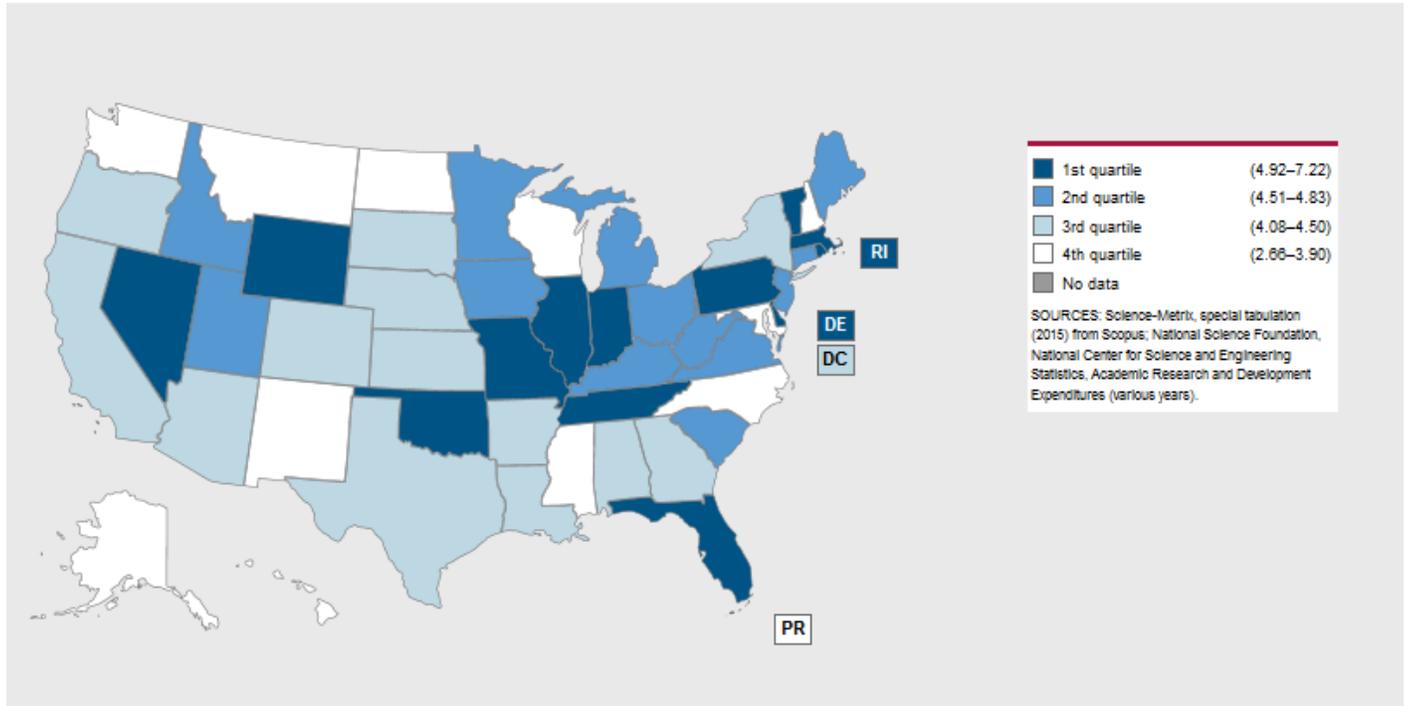
#### Findings

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- From 2003 to 2013, the number of academic S&E publications rose from 213,224 to 308,255—an increase of 45% that reflects both an increase in publications and an increase in the number of journals included in the database.
- In 2013, academic researchers produced an average of 4.87 publications per \$1 million of academic R&D, compared with 5.33 in 2003. This partly reflects the effect of general price inflation but may also indicate rising academic research costs.
- The values ranged from 2.66 to 7.22 across the states in 2013.
- Between 2003 and 2013, the national value decreased by 9%; however, state-specific values increased in 16 states.

## 8-47 Academic Science and Engineering Article Output per \$1 Million of Academic S&E R&D

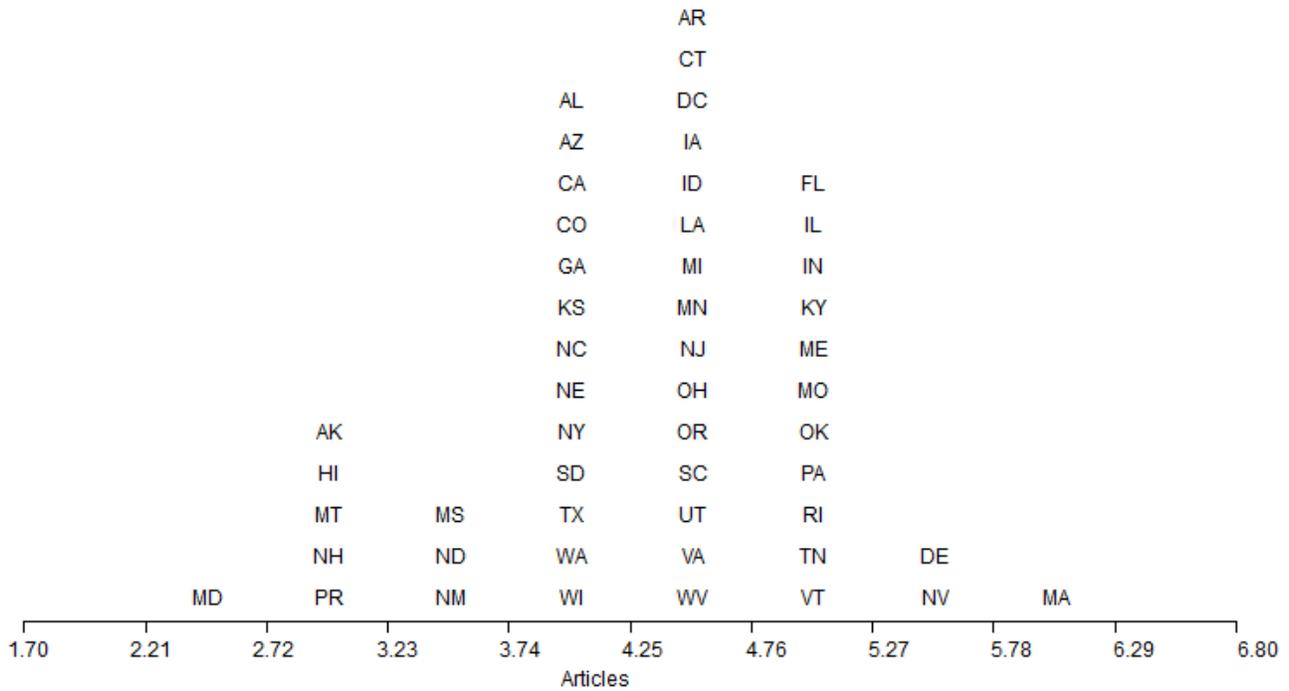
Year: 2013



## 8-47 Academic Science and Engineering Article Output per \$1 Million of Academic S&E R&D

Year: 2013

### Distribution of states across indicator values



Histograms do not display states with extreme values. Please consult the data tables for exact indicator values for each state.

## Chapter 8. State Indicators


**Table 8-47 Academic Science and Engineering Article Output per \$1 Million of Academic S&E R&D**

State	Academic S&E articles/\$1 million academic S&E R&D (Articles)												
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
United States	6.64	6.35	5.85	5.61	5.33	5.46	5.60	5.52	5.46	5.35	5.16	4.98	4.87
Alabama	5.40	5.38	5.13	4.72	4.51	4.70	4.90	4.95	4.72	4.55	4.12	3.77	3.75
Alaska	1.96	1.82	1.90	1.90	1.78	1.70	2.17	1.82	2.50	2.98	2.59	2.66	2.71
Arizona	5.87	5.94	5.35	5.36	5.05	4.89	4.93	4.78	4.85	4.66	4.51	4.51	4.43
Arkansas	6.74	5.63	5.63	6.10	4.71	5.21	5.24	4.57	5.01	4.70	4.87	4.59	4.53
California	5.86	5.53	5.00	4.78	4.65	4.33	4.58	4.61	4.54	4.46	4.29	4.29	4.21
Colorado	5.66	5.53	5.50	4.89	4.59	4.49	4.58	4.86	4.57	4.44	3.97	3.74	3.79
Connecticut	7.62	7.03	6.16	5.99	5.78	5.47	5.77	5.89	5.73	5.74	5.78	5.15	5.09
Delaware	7.24	8.05	8.18	8.06	7.24	7.45	8.15	7.64	7.62	7.75	7.30	5.72	5.49
District of Columbia	6.47	6.05	6.62	5.73	5.79	5.15	5.65	5.93	5.44	4.76	5.56	4.47	4.59
Florida	6.45	6.52	5.44	5.44	5.20	5.24	5.40	5.49	5.48	5.53	5.42	5.21	5.02
Georgia	4.74	4.55	4.50	4.28	4.31	4.46	4.69	4.65	4.75	4.31	4.28	4.36	4.33
Hawaii	4.13	4.51	4.38	4.01	4.04	3.25	3.51	3.61	3.60	3.71	3.31	3.23	3.15
Idaho	4.30	4.64	4.58	4.05	4.01	3.79	4.10	5.03	5.25	4.97	4.90	4.55	4.68
Illinois	7.31	7.09	6.38	5.97	5.69	5.70	5.97	6.06	6.04	5.84	5.46	5.58	5.34
Indiana	7.48	7.16	6.11	6.13	5.58	5.08	6.40	6.29	5.96	5.78	5.54	5.63	5.27
Iowa	6.14	5.82	5.47	5.25	5.24	4.98	5.26	5.14	4.94	5.70	5.26	4.30	4.27
Kansas	5.97	5.64	5.30	5.15	5.07	4.65	4.97	4.82	4.61	4.45	4.51	4.35	4.42
Kentucky	6.05	5.98	5.47	5.43	4.92	4.31	4.85	4.55	4.63	4.74	4.32	4.36	4.54
Louisiana	5.89	5.36	4.66	4.79	4.56	4.39	4.89	4.63	4.14	3.83	4.01	4.39	4.37
Maine	7.63	6.03	4.83	5.33	4.71	4.29	4.76	3.87	3.66	3.55	3.93	4.25	3.97
Maryland	3.98	3.79	3.53	3.13	3.14	2.92	3.18	3.02	3.13	2.88	2.61	2.63	2.56
Massachusetts	8.78	8.57	8.08	7.88	7.52	7.35	7.60	7.94	7.86	7.80	7.25	7.02	7.04
Michigan	6.26	5.73	5.34	5.19	4.89	5.03	5.49	5.50	5.56	5.44	5.19	4.85	4.78

Academic S&E articles/\$1 million academic S&E R&D (Articles)

State	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Minnesota	6.92	6.38	5.74	5.69	5.69	5.71	6.09	5.55	5.63	5.06	4.83	4.60	4.59
Mississippi	4.79	3.80	3.21	3.24	3.14	2.87	3.44	3.51	2.99	3.28	3.30	3.20	3.12
Missouri	6.49	5.90	5.59	5.47	4.87	4.80	5.02	5.11	5.09	5.23	4.93	5.23	5.06
Montana	4.37	3.64	3.70	3.58	3.15	2.80	2.82	3.39	3.09	2.95	3.13	2.86	3.24
Nebraska	5.51	5.62	5.09	4.58	4.16	4.56	4.33	4.45	4.40	4.23	4.02	4.61	4.55
Nevada	5.84	4.92	4.92	4.61	4.27	4.27	4.45	4.63	4.74	5.34	5.31	5.60	6.05
New Hampshire	4.64	4.32	3.55	3.62	3.22	3.10	3.31	3.21	3.29	3.16	3.30	3.44	3.00
New Jersey	6.43	6.40	5.74	5.51	5.54	5.26	5.41	5.62	5.65	5.59	5.36	4.77	4.67
New Mexico	4.75	4.36	3.54	3.73	3.50	3.87	3.59	3.24	3.27	3.30	3.28	3.36	3.51
New York	6.96	6.59	6.16	5.73	5.39	5.14	5.18	5.18	5.00	5.05	4.91	4.41	4.25
North Carolina	5.85	5.86	5.23	4.92	4.73	4.74	4.70	4.76	4.59	4.40	4.07	3.77	3.75
North Dakota	4.86	4.41	3.49	3.21	3.08	2.78	3.47	3.45	3.09	3.47	3.04	3.15	2.97
Ohio	7.61	7.09	6.50	6.05	5.50	5.54	5.33	5.12	4.89	4.79	4.61	4.51	4.42
Oklahoma	4.71	4.45	4.47	4.68	4.51	5.10	5.05	5.15	5.37	5.28	5.31	4.67	4.61
Oregon	5.59	5.60	5.14	5.31	4.82	4.49	4.53	4.64	4.72	4.53	4.12	3.91	4.09
Pennsylvania	7.24	6.67	6.25	5.76	5.85	5.45	5.83	5.72	5.80	5.60	5.33	5.08	4.98
Rhode Island	9.18	8.37	7.24	6.77	6.47	6.32	6.78	6.23	6.27	6.22	5.91	5.46	5.04
South Carolina	5.30	5.30	4.49	4.31	4.17	4.26	4.25	4.14	3.77	4.10	3.80	4.02	4.51
South Dakota	6.85	6.20	5.23	5.10	4.36	3.41	3.92	3.27	3.84	3.69	3.49	3.24	3.14
Tennessee	7.10	6.55	6.26	5.57	4.89	4.85	4.84	5.00	5.10	5.23	4.93	4.81	4.78
Texas	5.87	5.45	4.87	4.49	4.49	4.54	4.78	4.71	4.72	4.42	4.19	4.15	4.21
Utah	6.72	6.14	5.57	5.49	5.11	5.26	5.91	6.20	6.35	6.13	5.30	5.18	4.88
Vermont	6.34	6.70	5.93	4.86	4.33	4.30	4.48	4.80	5.23	4.97	4.62	4.51	4.29
Virginia	7.01	7.21	6.73	6.07	5.88	5.45	5.68	5.54	5.66	5.48	5.35	5.29	4.75
Washington	6.21	5.94	5.23	5.03	4.84	4.68	5.16	4.73	4.85	4.67	4.43	3.87	3.65
West Virginia	6.33	6.45	5.72	4.71	4.17	4.13	4.39	4.63	4.10	4.09	4.45	4.27	4.30
Wisconsin	5.86	5.33	4.70	4.54	4.44	4.27	4.35	4.36	4.47	4.23	4.00	3.84	3.66
Wyoming	4.83	4.76	4.85	6.05	4.33	4.70	3.69	3.62	4.64	4.80	4.48	6.91	7.36



Academic S&E articles/\$1 million academic S&E R&D (Articles)

State	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Puerto Rico	2.58	3.11	3.76	3.84	4.35	3.90	3.85	4.48	4.19	4.29	4.59	4.57	2.99

NOTES: The total for the United States includes publications for which the author location could not be determined. Academic R&D is reported for institutions with R&D over \$150,000.

SOURCES: Science-Metrix, special tabulation (2015) from Scopus; National Science Foundation, National Center for Science and Engineering Statistics, Academic Research and Development Expenditures (various years).

*Science and Engineering Indicators 2016*

State	Academic S&E article output												
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
United States	182,313	190,371	191,427	203,564	213,224	235,606	255,834	262,781	269,742	276,711	282,267	289,687	300,948
Alabama	2,250	2,302	2,298	2,378	2,484	2,690	2,891	2,979	3,095	3,217	3,140	3,127	3,309
Alaska	185	197	227	245	253	249	334	297	326	382	341	375	382
Arizona	2,580	2,769	2,677	2,849	3,122	3,185	3,552	3,657	3,797	3,877	3,939	4,063	4,215
Arkansas	757	742	801	859	867	953	1,097	1,085	1,203	1,158	1,166	1,173	1,227
California	21,496	22,495	22,166	23,362	24,938	26,062	28,688	29,918	30,588	31,331	31,792	32,517	33,400
Colorado	2,873	3,010	3,154	3,155	3,190	3,466	3,776	3,985	3,988	4,106	4,197	4,217	4,709
Connecticut	3,197	3,296	3,072	3,225	3,437	3,551	3,863	4,074	3,962	4,198	4,349	4,464	4,694
Delaware	552	629	654	712	758	854	943	932	958	1,033	977	927	980
District of Columbia	1,449	1,487	1,509	1,495	1,625	1,561	1,713	1,757	1,832	1,789	1,807	1,927	2,047
Florida	5,090	5,558	5,360	5,911	6,263	6,843	7,822	8,361	8,530	8,801	9,024	9,259	9,512
Georgia	3,983	4,214	4,452	4,608	5,069	5,448	5,976	6,053	6,604	6,551	6,700	7,023	7,179
Hawaii	648	728	687	693	746	785	843	929	987	1,035	994	1,015	1,028
Idaho	308	342	378	378	421	443	491	561	600	564	591	558	652
Illinois	8,049	8,306	8,178	8,605	9,180	9,761	10,569	11,050	11,281	11,527	11,528	11,975	12,089
Indiana	3,442	3,646	3,573	3,988	4,053	4,269	4,864	5,180	5,325	5,518	5,570	5,904	6,023
Iowa	2,306	2,435	2,405	2,552	2,613	2,649	2,885	2,943	2,897	3,008	2,960	2,963	3,012
Kansas	1,400	1,458	1,426	1,544	1,571	1,548	1,732	1,708	1,733	1,794	1,991	2,006	2,064
Kentucky	1,664	1,655	1,633	1,814	1,858	1,827	2,192	2,180	2,329	2,366	2,239	2,349	2,522
Louisiana	2,220	2,197	2,036	2,285	2,345	2,458	2,860	2,560	2,498	2,528	2,694	2,889	2,914
Maine	339	348	343	400	395	425	460	464	503	455	505	505	513
Maryland	5,527	5,713	5,835	5,941	6,405	6,629	7,485	7,628	7,959	7,913	7,870	8,146	8,631
Massachusetts	12,313	12,738	12,756	13,378	13,707	14,703	15,805	16,845	17,075	17,723	17,860	18,462	19,760
Michigan	5,769	5,780	5,918	6,399	6,795	7,036	7,996	8,109	8,390	8,670	9,041	9,237	9,708
Minnesota	2,612	2,666	2,696	2,871	2,949	3,055	3,398	3,359	3,588	3,536	3,661	3,696	3,979
Mississippi	839	825	838	938	1,018	998	1,214	1,296	1,227	1,334	1,375	1,339	1,344
Missouri	3,568	3,625	3,788	3,857	3,931	4,039	4,486	4,599	4,791	5,022	4,974	5,043	4,983
Montana	369	361	399	438	445	433	481	586	554	548	568	560	591

State	Academic S&E article output												
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Nebraska	1,133	1,171	1,231	1,223	1,250	1,482	1,558	1,597	1,606	1,592	1,584	1,624	1,788
Nevada	534	522	570	584	660	700	794	900	910	1,019	967	957	969
New Hampshire	590	652	699	796	813	858	952	1,012	1,010	953	984	1,028	1,027
New Jersey	3,353	3,635	3,608	3,805	4,177	4,232	4,679	4,823	4,884	4,906	4,894	4,878	5,096
New Mexico	1,066	1,063	972	1,092	1,074	1,177	1,298	1,364	1,342	1,378	1,427	1,368	1,405
New York	14,438	15,130	15,134	15,718	16,453	17,126	18,572	19,768	19,860	20,098	20,497	21,078	21,699
North Carolina	5,921	6,105	5,955	6,299	6,605	6,865	7,780	8,132	8,643	8,710	8,802	9,141	9,776
North Dakota	300	297	295	340	412	421	520	552	524	627	565	639	623
Ohio	6,327	6,508	6,472	6,751	6,980	7,315	8,160	8,388	8,640	8,758	8,732	8,852	9,318
Oklahoma	1,125	1,124	1,142	1,321	1,331	1,444	1,474	1,535	1,604	1,760	1,788	1,789	1,928
Oregon	1,832	1,937	1,883	2,055	2,105	2,267	2,431	2,589	2,709	2,695	2,620	2,595	2,871
Pennsylvania	10,068	10,354	10,581	11,029	11,795	12,033	13,796	13,906	14,143	14,596	14,512	15,367	15,943
Rhode Island	1,109	1,086	1,033	1,104	1,210	1,215	1,354	1,434	1,444	1,471	1,455	1,572	1,664
South Carolina	1,421	1,560	1,623	1,723	1,814	1,941	2,074	2,172	2,149	2,365	2,326	2,481	2,604
South Dakota	177	171	170	196	218	200	263	238	313	339	357	410	416
Tennessee	2,640	2,655	2,679	2,735	2,935	3,191	3,516	3,717	3,880	4,114	4,109	4,230	4,554
Texas	10,743	11,099	10,960	11,387	12,400	13,084	14,707	15,400	16,121	16,555	16,675	17,524	18,649
Utah	1,836	1,893	1,885	1,973	1,967	2,144	2,367	2,559	2,633	2,610	2,651	2,859	3,000
Vermont	411	434	456	438	461	498	526	593	602	583	577	598	586
Virginia	3,543	3,993	4,111	4,213	4,562	4,626	5,166	5,248	5,499	5,770	5,824	5,998	6,177
Washington	3,664	3,823	3,705	3,944	4,218	4,195	4,654	4,671	4,761	4,946	4,804	5,054	5,256
West Virginia	416	487	468	475	523	558	643	697	686	691	776	762	842
Wisconsin	3,502	3,531	3,428	3,665	3,897	4,089	4,351	4,530	4,770	4,731	4,816	4,725	4,906
Wyoming	228	205	202	252	260	282	308	324	370	359	348	373	407
Puerto Rico	234	232	240	270	341	337	386	466	448	479	483	525	456



Academic S&E article output

State	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
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SOURCES: Science-Metrix, special tabulation (2015) from Scopus; National Science Foundation, National Center for Science and Engineering Statistics, Academic Research and Development Expenditures (various years).

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State	Academic S&E R&D (\$millions)												
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
United States	27,447	30,002	32,724	36,294	39,976	43,124	45,648	47,630	49,363	51,736	54,730	58,208	61,822
Alabama	417	428	448	503	551	572	590	602	655	708	762	829	882
Alaska	94	108	119	129	142	146	154	163	131	128	132	141	141
Arizona	439	466	501	531	618	651	720	765	783	831	873	902	951
Arkansas	112	132	142	141	184	183	210	237	240	247	239	256	271
California	3,665	4,068	4,429	4,888	5,358	6,013	6,265	6,490	6,734	7,026	7,407	7,580	7,929
Colorado	508	545	573	645	695	771	825	821	873	924	1,058	1,129	1,241
Connecticut	419	469	499	538	595	649	670	692	691	732	753	867	923
Delaware	76	78	80	88	105	115	116	122	126	133	134	162	178
District of Columbia	224	246	228	261	281	303	303	296	337	375	325	431	446
Florida	789	852	986	1,086	1,205	1,307	1,449	1,522	1,558	1,592	1,664	1,778	1,897
Georgia	841	927	989	1,077	1,177	1,222	1,274	1,303	1,389	1,521	1,566	1,611	1,658
Hawaii	157	161	157	173	185	241	240	257	274	279	300	315	326
Idaho	72	74	82	93	105	117	120	111	114	113	121	123	139
Illinois	1,102	1,171	1,281	1,441	1,614	1,713	1,771	1,824	1,867	1,973	2,113	2,146	2,264
Indiana	460	509	584	651	726	841	760	824	894	955	1,005	1,048	1,142
Iowa	375	418	440	486	499	532	548	573	587	528	563	690	706
Kansas	235	258	269	300	310	333	349	354	376	404	441	461	467
Kentucky	275	277	298	334	378	424	452	479	503	499	519	538	556
Louisiana	377	410	436	477	514	559	584	553	604	660	671	658	668
Maine	44	58	71	75	84	99	97	120	137	128	128	119	129
Maryland	1,387	1,508	1,654	1,895	2,041	2,268	2,357	2,530	2,542	2,747	3,021	3,094	3,367
Massachusetts	1,402	1,486	1,579	1,697	1,822	2,000	2,080	2,123	2,172	2,272	2,463	2,629	2,807
Michigan	922	1,008	1,109	1,234	1,390	1,397	1,456	1,473	1,510	1,594	1,742	1,903	2,030
Minnesota	377	418	469	504	518	535	558	605	637	699	758	803	866
Mississippi	175	217	261	289	324	348	353	369	411	406	417	418	431
Missouri	550	614	678	706	807	842	893	900	941	960	1,009	964	984
Montana	84	99	108	122	141	155	171	173	179	186	182	196	182



State	Academic S&E R&D (\$millions)												
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Nebraska	205	208	242	267	301	325	360	359	365	376	394	352	393
Nevada	91	106	116	127	155	164	178	194	192	191	182	171	160
New Hampshire	127	151	197	220	252	277	287	315	307	302	298	299	342
New Jersey	521	568	628	691	754	805	866	858	865	878	914	1,023	1,092
New Mexico	225	244	274	293	307	304	361	421	410	417	435	407	400
New York	2,075	2,297	2,458	2,743	3,055	3,332	3,585	3,813	3,972	3,982	4,175	4,785	5,111
North Carolina	1,013	1,041	1,139	1,279	1,398	1,447	1,655	1,710	1,884	1,979	2,161	2,423	2,604
North Dakota	62	67	85	106	134	152	150	160	169	181	186	203	209
Ohio	831	918	996	1,116	1,268	1,320	1,532	1,638	1,768	1,827	1,895	1,964	2,109
Oklahoma	239	252	255	282	295	283	292	298	299	333	337	383	418
Oregon	328	346	366	387	437	505	536	557	575	595	637	663	701
Pennsylvania	1,391	1,553	1,694	1,914	2,015	2,208	2,368	2,431	2,438	2,604	2,722	3,027	3,202
Rhode Island	121	130	143	163	187	192	200	230	230	237	246	288	330
South Carolina	268	294	361	400	435	456	488	524	569	576	612	617	577
South Dakota	26	28	32	38	50	59	67	73	82	92	102	127	132
Tennessee	372	405	428	491	600	658	726	743	761	787	833	880	952
Texas	1,830	2,038	2,252	2,535	2,765	2,879	3,074	3,271	3,417	3,744	3,982	4,221	4,428
Utah	273	308	338	360	385	407	400	413	415	426	500	552	614
Vermont	65	65	77	90	107	116	117	124	115	117	125	133	137
Virginia	505	554	611	694	776	849	910	947	971	1,053	1,088	1,134	1,300
Washington	590	644	708	784	871	897	902	988	981	1,058	1,084	1,305	1,438
West Virginia	66	76	82	101	125	135	146	150	167	169	174	178	196
Wisconsin	597	662	729	807	878	957	1,000	1,040	1,067	1,117	1,204	1,231	1,339
Wyoming	47	43	42	42	60	60	83	89	80	75	78	54	55
Puerto Rico	91	75	64	70	78	87	100	104	107	112	105	115	152



Academic S&E R&D (\$millions)

State	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
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NOTES: The total for the United States includes publications for which the author location could not be determined. Academic R&D is reported for institutions with R&D over \$150,000.

SOURCES: Science-Metrix, special tabulation (2015) from Scopus; National Science Foundation, National Center for Science and Engineering Statistics, Academic Research and Development Expenditures (various years).

*Science and Engineering Indicators 2016*



State	Academic S&E articles/\$1 million academic S&E R&D (Articles)	
	2012	2013
United States	4.94	4.87
Alabama	4.24	4.20
Alaska	2.77	2.99
Arizona	4.28	4.08
Arkansas	4.66	4.50
California	4.19	4.10
Colorado	3.91	4.10
Connecticut	5.33	4.68
Delaware	5.84	5.40
District of Columbia	4.52	4.49
Florida	5.14	5.12
Georgia	4.30	4.14
Hawaii	3.07	3.06
Idaho	3.99	4.58
Illinois	5.36	5.01
Indiana	5.47	5.08
Iowa	4.42	4.51
Kansas	4.47	4.21
Kentucky	4.71	4.83
Louisiana	4.28	4.30
Maine	4.34	4.83
Maryland	2.69	2.66
Massachusetts	6.73	6.20
Michigan	4.73	4.62
Minnesota	4.63	4.53
Mississippi	3.19	3.57
Missouri	4.99	5.01
Montana	3.21	3.18
Nebraska	4.24	4.20



State	Academic S&E articles/\$1 million academic S&E R&D (Articles)	
	2012	2013
Nevada	6.12	5.71
New Hampshire	3.06	3.22
New Jersey	4.83	4.56
New Mexico	3.67	3.56
New York	4.36	4.22
North Carolina	3.89	3.76
North Dakota	3.25	3.30
Ohio	4.78	4.71
Oklahoma	4.76	5.00
Oregon	4.31	4.27
Pennsylvania	5.12	5.00
Rhode Island	5.25	5.26
South Carolina	4.70	4.66
South Dakota	3.96	4.24
Tennessee	4.80	4.92
Texas	4.24	4.08
Utah	5.05	4.51
Vermont	5.08	5.18
Virginia	5.03	4.70
Washington	3.86	3.81
West Virginia	4.41	4.56
Wisconsin	3.78	3.90
Wyoming	6.57	7.22
Puerto Rico	3.19	3.06



Academic S&E articles/\$1 million academic S&E R&D (Articles)

State

2012

2013

NOTES: The total for the United States includes publications for which the author location could not be determined. Academic R&D is reported for institutions with R&D over \$150,000.

SOURCES: Science-Metrix, special tabulation (2015) from Scopus; National Science Foundation, National Center for Science and Engineering Statistics, Academic Research and Development Expenditures (various years).

*Science and Engineering Indicators 2016*



State	Academic S&E article output	
	2012	2013
United States	306,594	308,255
Alabama	3,428	3,411
Alaska	376	398
Arizona	4,228	4,139
Arkansas	1,283	1,254
California	33,957	33,034
Colorado	4,891	4,923
Connecticut	4,929	4,880
Delaware	1,033	1,013
District of Columbia	2,055	2,078
Florida	9,913	9,843
Georgia	7,359	7,410
Hawaii	1,006	1,038
Idaho	571	638
Illinois	12,173	12,071
Indiana	6,298	6,103
Iowa	3,075	3,129
Kansas	2,146	2,106
Kentucky	2,577	2,490
Louisiana	2,797	2,721
Maine	515	499
Maryland	8,925	9,027
Massachusetts	20,257	20,116
Michigan	9,827	9,859
Minnesota	3,892	3,943
Mississippi	1,398	1,377
Missouri	5,262	5,149
Montana	593	557
Nebraska	1,778	1,762



State	Academic S&E article output	
	2012	2013
Nevada	914	840
New Hampshire	1,070	1,081
New Jersey	5,123	5,114
New Mexico	1,434	1,392
New York	22,524	22,471
North Carolina	10,190	10,044
North Dakota	695	701
Ohio	9,653	9,672
Oklahoma	1,967	1,922
Oregon	2,935	2,854
Pennsylvania	16,001	16,136
Rhode Island	1,765	1,687
South Carolina	2,649	2,658
South Dakota	488	480
Tennessee	4,650	4,822
Texas	18,728	18,694
Utah	3,073	3,033
Vermont	608	623
Virginia	6,453	6,225
Washington	5,307	5,345
West Virginia	835	844
Wisconsin	5,024	4,986
Wyoming	419	456
Puerto Rico	451	394



Academic S&E article output

State

2012

2013

NOTES: The total for the United States includes publications for which the author location could not be determined. Academic R&D is reported for institutions with R&D over \$150,000.

SOURCES: Science-Metrix, special tabulation (2015) from Scopus; National Science Foundation, National Center for Science and Engineering Statistics, Academic Research and Development Expenditures (various years).

*Science and Engineering Indicators 2016*

Academic S&E R&D (\$millions)

State	2012	2013
United States	62,050	63,242
Alabama	808	813
Alaska	136	133
Arizona	987	1,014
Arkansas	276	279
California	8,103	8,064
Colorado	1,249	1,201
Connecticut	924	1,042
Delaware	177	188
District of Columbia	455	463
Florida	1,930	1,922
Georgia	1,712	1,789
Hawaii	328	339
Idaho	143	139
Illinois	2,270	2,407
Indiana	1,150	1,201
Iowa	695	693
Kansas	480	500
Kentucky	547	515
Louisiana	654	633
Maine	119	103
Maryland	3,316	3,394
Massachusetts	3,011	3,246
Michigan	2,077	2,134
Minnesota	841	870
Mississippi	438	386
Missouri	1,055	1,028
Montana	185	175
Nebraska	419	420



State	Academic S&E R&D (\$millions)	
	2012	2013
Nevada	149	147
New Hampshire	350	336
New Jersey	1,060	1,122
New Mexico	391	391
New York	5,166	5,329
North Carolina	2,619	2,670
North Dakota	214	213
Ohio	2,018	2,053
Oklahoma	413	385
Oregon	681	668
Pennsylvania	3,128	3,224
Rhode Island	336	321
South Carolina	564	570
South Dakota	123	113
Tennessee	968	980
Texas	4,414	4,585
Utah	608	673
Vermont	120	120
Virginia	1,284	1,323
Washington	1,376	1,402
West Virginia	189	185
Wisconsin	1,331	1,278
Wyoming	64	63
Puerto Rico	141	129



Academic S&E R&D (\$millions)

State	2012	2013
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NOTES: The total for the United States includes publications for which the author location could not be determined. Academic R&D is reported for institutions with R&D over \$150,000.

SOURCES: Science-Metrix, special tabulation (2015) from Scopus; National Science Foundation, National Center for Science and Engineering Statistics, Academic Research and Development Expenditures (various years).

*Science and Engineering Indicators 2016*